

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : RICHARD, D.
Appl. No. : 09/787,952
Filed : March 23, 2001
Title : SYSTEM, ESPECIALLY FOR A MOTOR VEHICLE, ABLE
TO START AN INTERNAL-COMBUSTION ENGINE AND
CHARGE AN ELECTRICAL CIRCUIT
Group Art Unit : 3747
Examiner : DOLINAR, A.
Docket No. : 1200.459



#13
11/19/03
A. Coward

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APPELLANT'S BRIEF UNDER 37 C.F.R. § 1.192

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November 12, 2003

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Washington, D.C. 20231

Dear Sir:

In follow-up to the Notice of Appeal filed June 12, 2003, Appellant respectfully requests the Board of Patent Appeals and Interferences consider the following arguments and reverse the decision of the Examiner in whole.

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(1) Real Party in Interest

The real party in interest is VALEO EQUIPMENTS ELECTRIQUE MOTEUR, assignee to the instant invention.

(2) Related Appeals and Interferences

There are no known related appeals or interferences, which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal.

(3) STATUS OF CLAIMS

1. Claims 1-13 were originally filed with the specification on March 23, 2001.
2. On March 23, 2001 Appellant filed Preliminary Amendment amending claims 3, 4, 8 and 9 and adding new claims 11-16.
3. In the Official Action dated April 25, 2002, the Examiner rejected claims 1, 2, 4-7, 9, 10, 12 and 15 under 35 U.S.C. 102(e) as being anticipated by Bolenz et al. (USP 6,032,632) (hereinafter referred to as Bolenz). Claims 3, 8, 11, 13, 14 and 16 were rejected under 35 U.S.C. 103(a) as being unpatentable over Bolenz in view of Dyches et al. (USP 5,601,058) (hereinafter referred to as Dyches).
4. On October 25, 2002 Appellant filed Amendment amending claims 1-3, 6-8 and 11, canceling claims 4, 5, 9, 10 and 12-16 and presenting arguments for the patentability of claims 1-3, 6-8 and 11.

5. In the Final Official Action dated December 12, 2002, the Examiner rejected claims 1, 2, 6 and 7 under 35 U.S.C. 102(e) as being anticipated by Bolenz. Claims 3, 8 and 11 were rejected under 35 U.S.C. 103(a) as being unpatentable over Bolenz in view of Dyches.

6. On June 12, 2003 Appellant filed response presenting arguments for the patentability of claims 1-3, 6-8 and 11.

7. Concurrently, on June 12, 2003, Appellant filed a Notice of Appeal.

8. On July 9, 2003 the Examiner issued an Advisory Action maintaining rejection of claims 1-3, 6-8 and 11.

(4) STATUS OF AMENDMENT

Appellant filed a Notice of Appeal on June 12, 2003 to appeal the Examiner's rejection of claims 1-3, 6-8 and 11. The Advisory Action finally rejecting claims 1-3, 6-8 and 11 was mailed on July 9, 2003. Subsequently, there have been no other papers filed by the Appellant or issued by the U.S. PTO.

(5) SUMMARY OF THE INVENTION

The instant invention is directed to a system for starting up an internal combustion engine and charging an electrical circuit, and a method for controlling the system. The system comprises a main electrical machine able to operate both as a generator and an electric motor, a supplementary starter, management means driving the main electrical machine and the supplementary starter, and means for detecting at least one condition for triggering activation

of the supplementary starter. The management means drive the main electrical machine and the supplementary starter, according to a particular sequence, when the condition is detected by the detection means. The management means include means for actuating the supplementary starter, when the condition for activating the supplementary starter is detected, by meshing a pinion of the supplementary starter with a complementary crown ring secured to a drive shaft of the engine in order to drive the internal-combustion engine. The management means further include means for cutting off the operation of the main electrical machine in motor mode, when a condition for activation of the supplementary starter is detected. Preferably, the detection means include means for detecting a failure to start the engine at the end of a given time during which the main electrical machine is operating in motor mode.

(6) ISSUES

1. Whether claims 1, 2, 6 and 7 are patentable over Bolenz.
2. Whether claim 3, 8 and 11 are patentable over Bolenz in view of Dyches.

(7) GROUPING OF THE CLAIMS

Claims 1-2 and 6-7 stand and fall together.

Claims 6-7 stand and fall together.

Claim 3 is separately patentable.

Claim 8 is separately patentable.

Claim 11 is separately patentable.

(8) ARGUMENTS

Sub-paragraph (i)

This sub-paragraph is not applicable to the instant appeal in so far as there are no rejections under 35 U.S.C. § 112, first paragraph.

Sub-paragraph (ii)

This sub-paragraph is not applicable to the instant appeal in so far as there are no rejections under 35 U.S.C. § 112, second paragraph.

Sub-Paragraph (iii)

Claims 1, 2, 6 and 7 were rejected under 35 USC 102(e) as being anticipated by Bolenz. It is noted that claim 1 is independent claim, claims 2 depends upon claim 1, claim 6 is independent claim, and claim 7 depends upon claim 6.

Regarding claim 1: Bolenz discloses a starter/generator device 33 and a conventional starter 37 both employed to perform starting function. However, Bolenz fails to disclose management means which drive the main electrical machine and the starter according to a particular sequence. Bolenz also fails to disclose “the management means include means for cutting off the operation of the main electrical machine in motor mode, when a condition for activation of the supplementary starter is detected.”, as further recited in claim 1 (see last three

lines of claim 1. In other words, the main electrical machine and the supplementary starter, as recited in claim 1 of the present application, do not simultaneously perform a starting function. Rather, they perform the starting function separately, according to a particular sequence, so that the operation of the main electrical machine in motor mode is cut off when the condition for activation of the supplementary starter is detected.

Bolenz fails to disclose the use of the starter/generator device and the starter to act separately according to a particular sequence, as explained in the immediately preceding paragraph. Contrary to the present invention, Bolenz teaches an arrangement wherein a starter 13 and a starter/generator 14 **both** perform the starting function in temperatures under 30-40° C. See column 3, lines 45-50; See also Fig. 2. In Fig. 3 of Bolenz, the conventional starter 23 and the starter generator device 24 operate as a motor **together** to provide the starting function for an internal-combustion engine in temperatures below 30-40° C. See column 4, lines 1-6; See also Fig. 3. Bolenz further emphasizes this aspect again in column 4, lines 23-25 and with reference to Fig. 4; here again, a conventional starter 37 and the starter/generator device 33 operate **together** as a motor to perform the starting function. Notably, the electrical machine is not cut off when at least one condition for activation of the supplementary starter is detected – as claimed. At higher temperatures of the internal combustion engine over 40° C the starting functions are performed exclusively by the starter/generator device. As clearly disclosed by Bolenz, “either the conventional starter, or the starter/generator, or both are activated”, but not according to a particular sequence, so that the operation of the main electrical machine in motor mode is cut off when the condition for activation of the supplementary starter is detected.

Therefore, claim 1 defines the invention over Bolenz.

Regarding claim 6: Bolenz fails to disclose a method for control of a system for starting up the engine and charging an electrical circuit that includes management means which drive the main electrical machine and the starter according to a particular sequence, and the step of cutting off the operation of the main electrical machine in motor mode, when a condition for activation of the supplementary starter is detected. In other words, the main electrical machine and the supplementary starter, in accordance with the method for control recited in claim 6 of the present application, does not simultaneously perform a starting operation. Rather, they perform the starting function separately, according to a particular sequence, so that the operation of the main electrical machine in motor mode is cut off when the condition for activation of the supplementary starter is detected.

Thus, Bolenz fails to disclose the method for control of the starter/generator device and the starter acting independently according to a particular sequence, as explained above regarding the rejection of claim 1. Contrary to the present invention, Bolenz teaches an arrangement wherein the starter and the starter/generator operate as a motor together to provide the starting function for an internal-combustion engine in temperatures below 30-40^o C. At higher temperatures of the internal combustion engine over 40° C the starting functions are performed exclusively by the starter/generator device.

Therefore, claim 6 defines the invention over Bolenz.

Sub-paragraph (iv)

Claims 3, 8 and 11 were rejected under 35 USC § 103(a) as being unpatentable over Bolenz et al. in view of Dyches et al. It is noted that claims 3 depends upon independent claim 1, claim 8 depends upon independent claim 6, and claim 11 depends upon claim 2.

Regarding claim 3: The Examiner alleges that Bolenz teaches all the limitations of claim 1 except for detecting a failure to start. The Examiner further alleges that Dyches teaches that it is known to provide an engine starting system with means for detecting a failure to start. The Examiner further asserts that it would be obvious to combine the teaching of Dyches and Bolenz.

Contrary to the Examiner's allegations, Bolenz fails to disclose not only means for detecting a failure to start the engine at the end of a given time during which the main electrical machine is operating in motor mode, but also the use of the starter/generator device and the starter acting separately according to a particular sequence, so that if the failure to start the engine at the end of the given time during which the main electrical machine is operating in motor mode is detected, then the management means cuts off the operation of the main electrical machine in motor mode and activates the supplementary starter. See Id.

Moreover, contrary to the Examiner's allegations, Dyches fails to teach means detecting the failure to start in the internal combustion engine. Furthermore, Dyches fails to teach use of an alternator/starter and a supplementary starter as explained in the present application. In fact, Dyches teaches an internal combustion engine starting apparatus including means to determine when the engine is energized and the starter motor should be de-energized, not the failure to start in the internal combustion engine. Furthermore, Dyches discloses a starting apparatus having only a starter motor, not a starter motor and a supplementary starter as in the present application.

Therefore, even if the combination of and modification of Bolenz and Dyches suggested by the Examiner could be made, the resulting internal combustion engine starting apparatus still would lack the management means which drive the main electrical machine

and the starter separately according to a particular sequence and the means for detecting the failure to start the engine at the end of a given time during which the main electrical machine is operating in motor mode.

Moreover, the Examiner fails to prove as to why one having ordinary skill in the art would have found the claimed invention to be obvious in light of the teachings of Dyches and Bolenz. Examiner's statement that modifications of Dyches and Bolenz to meet the claimed invention would have been obvious to one having ordinary skill in the art at the time the invention was made, is not sufficient to establish *prima facie* case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App.&Inter. 1993). Clearly, neither prior art reference provides motivation to operate the alternator/starter or the supplementary starter in the particular sequence by cutting off the operation of the main electrical machine in motor mode when the failure to start the engine at the end of a given time during which the main electrical machine is operating in motor mode is detected, as the present application discloses.

Regarding claim 8: Bolenz fails to disclose the method for control of a system for starting up the engine and charging an electrical circuit that includes management means which drive the main electrical machine and the starter according to a particular sequence, and the step of cutting off the operation of the main electrical machine in motor mode, when a condition for activation of the supplementary starter is detected, and the step detecting a failure to start the engine at the end of a given time during which the main electrical machine is operating in motor mode, thus detecting a triggering condition. Dyches fails to teach the use of an alternator/starter and a supplementary starter as explained in the present application, and means detecting the failure to start in the internal combustion engine.

Therefore, even if the combination of and modification of Bolenz and Dyches suggested by the Examiner could be made, the resulting method for control the internal combustion engine starting apparatus still would lack the use of the main electrical machine and the starter separately according to a particular sequence and the step of detecting the failure to start the engine at the end of a given time during which the main electrical machine is operating in motor mode.

Moreover, the Examiner fails to prove as to why one having ordinary skill in the art would have found the claimed invention to be obvious in light of the teachings of Dyches and Bolenz. Clearly, neither prior art reference provides motivation to operate the alternator/starter or the supplementary starter in the particular sequence by cutting off the operation of the main electrical machine in motor mode when the failure to start the engine at the end of a given time during which the main electrical machine is operating in motor mode is detected, as the present application discloses.

Regarding claim 11: Bolenz fails to disclose the management means which drive the main electrical machine and the starter separately according to a particular sequence, the means for cutting off the operation of the main electrical machine in motor mode, when a condition for activation of the supplementary starter is detected, and the means for detecting a failure to start the engine at the end of a given time during which the main electrical machine is operating in motor mode in combination with the means for comparing a temperature measured by a temperature sensor with a particular low threshold. Dyches fails to teach the use of an alternator/starter and a supplementary starter as explained in the present application, and means detecting the failure to start in the internal combustion engine.

Therefore, even if the combination of and modification of Bolenz and Dyches suggested by the Examiner could be made, the resulting internal combustion engine starting apparatus still would lack the management means which drive the main electrical machine and the starter separately according to a particular sequence, and the means for detecting the failure to start the engine at the end of a given time during which the main electrical machine is operating in motor mode in combination with the means for comparing the temperature measured by the temperature sensor with the particular low threshold.

Moreover, the Examiner fails to prove as to why one having ordinary skill in the art would have found the claimed invention to be obvious in light of the teachings of Dyches and Bolenz. Clearly, neither prior art reference provides motivation to operate the alternator/starter or the supplementary starter in the particular sequence by cutting off the operation of the main electrical machine in motor mode when the failure to start the engine at the end of a given time during which the main electrical machine is operating in motor mode is detected in combination with the means for comparing the temperature measured by the temperature sensor with the particular low threshold, as the present application discloses.

Thus, because of the all of the above reasons, the rejection of claims 3, 8 and 11 under 35 U.S.C. § 103(a) is improper.

Sub-paragraph (v)

This sub-paragraph is not applicable to the instant appeal in so far as the final rejection does not raise any issues other than those referred to in sub-paragraphs (i)-(iv).

Conclusion

The foregoing arguments detail the failure of the Examiner's 35 U.S.C. 102(e) and 103(a) based rejections to survive scrutiny under the requirements of such rejections. Thus, the Examiner's rejections should be reversed and such a decision by the Board is respectfully sought.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance, and notice to that effect is earnestly solicited. Appellant will request an oral hearing on the merits within two months after the date of the Examiner's answer.

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09/787,952
In re Richard, D.



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(9) APPENDIX OF CLAIMS ON APPEAL

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1. System for a motor vehicle, able, on the one hand, to start up an internal-combustion engine and, on the other hand, to charge an electrical circuit, including a main electrical machine able to operate, on the one hand, as a generator and, on the other hand, as an electric motor, said electrical machine driving the internal-combustion engine by means of a belt when said main electrical machine is operating in motor mode, the system further comprises a management means which drive the main electrical machine, further comprising a supplementary starter, as well as means for detecting at least one condition for triggering activation of said supplementary starter, and the management means drive the main electrical machine and the starter, according to a particular sequence, when said condition is detected by said detection means, wherein the management means include means for actuating the supplementary starter, when a condition for activating the supplementary starter is detected, in such a way that its pinion meshes on a complementary ring in order to drive the internal-combustion engine, in order to drive the main electrical machine in motor mode, when the pinion of the starter has been meshed and in order to cut off the starter and drive the main electrical machine in generator mode when it is detected that the internal-combustion engine

has started and the management means include means for cutting off the operation of the main electrical machine in motor mode, when a condition for activation of the supplementary starter is detected.

2. System according to Claim 1, wherein said detection means include at least one temperature sensor, as well as means for comparing a temperature measured by said sensor with a particular low threshold.

3. System according to Claim 1, wherein the detection means include means for detecting a failure to start at the end of a given time during which the main electrical machine is operating in motor mode.

6. Method for control of a system, especially for a motor vehicle, able, on the one hand, to start up an internal-combustion engine and, on the other hand, to charge an electrical circuit, including a main electrical machine able to operate, on the one hand, as a generator and, on the other hand, as an electric motor, said main electrical machine driving the internal-combustion engine by means of a belt when it is operating in motor mode, wherein said system further comprises a supplementary starter, wherein at least one condition for triggering activation of said supplementary starter is detected, and the main electrical machine and the starter are driven according to a particular sequence when said at least one condition is detected, when said at least one condition for activation the supplementary starter is detected, the supplementary starter is actuated such that its pinion meshes on a complementary ring in order to drive the internal-combustion engine, the main electrical machine is put into motor

mode, when the pinion of the supplementary starter has been meshed, and the supplementary starter is cut off and the main electrical machine is placed into generator mode when it is detected, and that the internal-combustion engine has started and the operation of the main electrical machine in motor mode is cut off when at least one condition for activation of the supplementary starter is detected.

7. Method according to Claim 6, wherein in order to detect a triggering of said at least one condition, at least one temperature is measured and said at least one temperature is compared with a particular low threshold.

8. Method according Claim 6, wherein in order to detect a triggering condition, a failure to start is detected at the end of a given time during which the main electrical machine is operating in motor mode.

11. System according to Claim 2, wherein the detection means include means for detecting a failure to start at the end of a given time during which the main electrical machine is operating in motor mode.